TRANSMITTAL OF APPEAL BRIEF	Docket No. 01950/000G777-US0

In re Application of: Wolfgang Keupp et al.

Application No.	Filing Date	Examiner	Group Art Unit
09/509,316	June 29, 2000	D. Wu	2615

Invention: DEVICE AND METHOD FOR DETERMINING IMAGE MODIFICATION VALUES

TO THE COMMISSIONER OF PATENTS:

Transmitted herewith is the Appeal Brief in this application, with respect to the Notice of Appeal filed: November 3, 2004 .

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Dated: March 2, 2005

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Docket No.: 01950-000G777-US0
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Wolfgang Keupp et al.

Application No.: 09/509,316 | Confirmation No.: 2015

Filed: June 29, 2000 | Art Unit: 2615

For: DEVICE AND METHOD FOR DETERMINING IMAGE MODIFICATION VALUES | Examiner: Dorothy Wu

APPELLANTS' BRIEF

MS Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

This is an appeal from the final rejection dated, August 3, 2004. A Notice of Appeal was filed on November 3, 2004.

(1) *Real Party in Interest.*

The real party in interest is Agfa-Gevaert AG, the assignee of this application.

(2) *Related Appeals and Interferences.*

There are no interferences which will affect or be directly affected by or have a bearing on the Board's decision in the pending appeal. There is an appeal pending in U.S. Patent Application Serial No. 09/530,559 which is directed to subject matter closely related to the subject matter of this application.

(3) *Status of Claims*

Claims 15-18 are pending in this application (see Appendix A).

All of the claims have been rejected.

(4) *Status of Amendments*

No amendment was filed subsequent to final rejection.

(5) *Summary of Invention*

Many different types of digital cameras are in common use today. Digital cameras include image acquisition sensors which convert light into electrical signals for subsequent processing. Different image acquisitions sensors typically have different characteristics, in particular different spectral sensitivities. For this reason, the color rendition and density representation of the images acquired by different digital cameras usually differ (p. 1, ll. 9-15).

When the stored image data from a digital camera is reproduced or printed on photographic paper (or other printing material) unwanted color and density distortions can occur due to the characteristics of the image acquisition sensors. This will cause a subject photographed by different digital cameras to be reproduced differently (p. 2, ll. 1-6).

The present invention overcomes this problem, and provides a true and accurate reproduction of the images from a digital camera regardless of the type of camera.

The drawing shows a printer PR which comprises first and second memories SP1 and SP2, respectively, and a control device CR which controls the functions executed by the printer. The printer also includes a receiver EP which is capable of receiving data of any kind.

The first memory SP1 stores data set DS1-DSn which represent the image data generated by a digital camera during use (p. 4, ll. 25-27). Each data set includes the image data of one of the images captured by the camera.

The second memory SP2 stores print data sets GD1-GDn. These print data sets include image correction values for use in printing the images, for example, on photographic paper. Such image correction values relate to the color and/or density settings to be used for printing the images. Each of the print data sets GD1-GDn is associated with a different camera type KT1-KTn (p. 5, ll. 1-11).

The image correction values contained in the different print data sets GD1-GDn include the known characteristics of the respective camera types. They are determined by a calibration process wherein several digital camera of the same type are measured to determine the specific physical and electronic properties of the camera type. For example, the characteristics may produce color and/or density deviations in an acquired image which would cause an image with a color cast or saturated colors to be produced when printing on the selected material. By measuring the physical and electronic properties of several cameras of a particular type, the image correction values required to correct for such distortion can be determined and stored as a print data set GD. Preferably, the print data sets GD1-GDn have fixed preset values which do not change (p. 5, ll. 13-27).

The invention relates to the manner in which the print data set for a specific camera is selected. In accordance with the invention, the camera type (and thus the proper data set GD1-GDn) is identified from the image data sets DS1-DSn stored in the first memory SP1 (p. 6, ll. 14-18). This is possible because each digital camera type has certain characteristics with respect to the resolution and/or the color saturation of the recorded images. In addition, each

digital camera type formats and compresses the image data in a unique manner. By examining one or more of these characteristics of the image it is possible to identify the camera type used to gather the image (p. 6, ll. 18-25).

After the image data has been analyzed to determine the camera type, the control device CR uses the image correction values specific to the identified camera to determine the image specific color print values for printing the image. The determination of the image specific color print values and the printing of the images is conventional and is not a part of this invention (p. 6, l. 31 -- p. 7, l. 9).

(6) *Issues*

The issue in this case is whether claims 15-18 are unpatentable under 35 U.S.C. §103(a) over Ichikawa U.S. Patent No. 5,717,389 in view of Murphy et al. U.S. Patent 6,282,362.

(7) *Grouping of Claims*

Claims 15 and 16 are method claims and 17 and 18 are apparatus claims. Appellants agree that the claims stand or fall together.

(8) *Argument*

a. The Rejection

The Final Rejection is as follows:

> Claims 15-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ichikawa, U.S. Patent 5,717,839, included in applicant's Information Disclosure Statement, in view of Murphy et al, U.S. Patent 6,282,362.
>
> Regarding claim 15, Ichikawa teaches a method for correcting digital images produced by a digital camera, comprising the steps of: identifying the camera type used to produce the digital

> images (col. 9, lines 38-41); correlating said camera type with correction values specific to the camera type to correct flaws common to image captured with said camera type (col. 10, lines 5-26); and adjusting all of the images produced by the camera according to said correction values (col. 11, lines 4-21). Ichikawa does not teach that the identification of the camera type is achieved using image data provided by the camera. Murphy teaches that information concerning the circumstances of formation of an image may be concealed within the image itself instead of being transmitted separately (col. 6, line 63-col. 7, line 6). Transferring auxiliary data regarding camera type as part of the image in Ichikawa would clearly increase the integrity of the data transfer by eliminating the need for a separate data channel. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the practice of concealing the camera type used to form the image within the image itself taught by Murphy into the data transfer of Ichikawa in order to increase the integrity of the data transfer operation.

Office Action, Dec. 1, 2003, pp. 3-4.

b. The Prior Art

Ichikawa is directed to the problem of correcting for image distortion due to camera type. However, as the Examiner acknowledges, "Ichikawa does not teach that the identification means are implemented in such a way that image data can be evaluated from at least one of the images which is to be printed." Instead, Ichikawa identifies the camera type from a preamble which is stored before the image file (col. 6, l. 17-20, Fig. 2). As stated in the patent, "a preamble is put to the top of the image data to be written, and the name of the type of electronic camera is written in a predetermined portion of the preamble." (col. 6, l. 17-20).

Ichikawa's control unit 13 "identifies the type of electronic camera used to take the image concerned by referring to a predetermined portion of the preamble of the image information read out from the memory card." (col. 9, ll. 37-41). In the automatic mode, the control unit 13 reads out the standard correction table data from the correction table data "corresponding to the combination of the electronic camera A and the printer a in the table

memory 19, and transfers the read data to printer 12 through the I/F 20." (col. 10, l. 7-12) Thus, Ichikawa provides image correction data based on camera type, but the camera is identified by a preamble to the image data not the image data itself.

Murphy et al. relates to a digital recording system in which certain information relating to the image is encoded with the image information. In the introductory portion of the patent, entitled "Previous Art," a number of prior art systems are described in which various types of position information is recorded with the image information on a recording medium (i.e., photosensitive film or magnetic videotape).

The object of Murphy et al. is to "provide image data storage in digital format with one or more hyper-links between the image and the image location at the time of data capture" (col. 6, ll. 14-17). In the portion of the specification relied upon by the Examiner (col. 6, l. 63 – col. 7, l. 6) Murphy et al. state:

> "The image authentication needs of the above are met with one steganographic embodiment of the invention, which forms a digitally expressed image, using a digitized image forming means such as a digital camera, and conceals information concerning the circumstances of formation of the image within the image itself. Preferably, this authentication information includes the location, angular orientation, time of image formation and/or distance (range) to a selected object in the image, of the digitized image forming means (referred to herein as a "digital camera" for ease of reference) at the time the image was formed."

c. Discussion

The Examiner is correct in saying that "Murphy teaches that information concerning the circumstances of formation of an image may be concealed within the image itself instead of being transmitted separately." But that statement does not adequately describe the reference, and therein lies the Examiner's error. In Appellants' invention, information specific to

camera type is not "concealed within the image" -- the way that Murphy et al. records their authentication information. Rather, in Appellants' invention, information about camera type is identified *from the image data* as opposed to information which is *embedded* in the image data. As explained in Appellants' specification on page 6, second full paragraph, each digital camera has certain characteristics with respect to resolution, color saturation, format or compression technique. In Appellants' invention, it is those unique characteristics *of the image* (as opposed to specially recorded data embedded in the image) that are evaluated to determine camera type.

In summary, it is true that Ichikawa identifies camera type and uses that information to provide color correction values specific to camera type. Ichikawa, however, does not teach that the camera type can be identified from the image data captured by the camera. Instead, the camera type is identified by a header which precedes the digital image information. Murphy et al. teach that authentication information (e.g. location, angular orientation, time of image formation and range) can be incorporated into the digital image and recorded separately for each image, but Murphy et al. do not teach that the authentication information can be identified from the image data itself; the authentication information must always be separately recorded.

Accordingly, the Examiner's rejection of Appellants' claims as unpatentable over Ichikawa in view of Murphy et al. is improper for a number of reasons.

First, Murphy et al. does not teach that information of any type can be derived from the actual image information. Instead, the authentication information must be separately recorded. Hence, even if the references could be combined (which, as shown below, is not the case), taken in the light most favorable to the Examiner, the result would be that information relating to camera type is separately recorded with the image data. There is still no teaching that

the camera type can be identified from the image data (as opposed to separately recorded information identifying camera type).

Second, Murphy et al. are concerned with recording certain specific types of authentication data, namely, information related to the geographical location at which the images were captured. Ichikawa is not concerned with geographical location and there is therefore no motivation or suggestion to combine the references. If the references were combined, the result would be a digital recording system in which camera type is identified by a header in front of the image data and geographical location data for each image is embedded within the image.

Both of the independent claims 15 and 17 distinguish over the prior art. Claim 15 requires the step of "identifying the camera type used to produce the digital images *from image data* provided by the camera (emphasis supplied)." Similarly, claim 17 calls for "identification means *responsive to digital image data* produced by the camera for detecting the camera type that captured the digital image (emphasis supplied)." Both claims thus expressly require the identification of camera type *from the image data*, which is not the same thing as saying that the camera type is identified by means of a separate signal embedded within the image data (in which the signal itself is not part of the image data even though it is embedded).

Accordingly, even though there is no reason to combine Ichikawa and Murphy et al., it is clear that no matter how the references are combined, there would still be no teaching that camera type can be identified from the image data. Taken in the light most favorable to the Examiner, at best the combined references would teach identifying camera type from information embedded within the image data, but not from the image data itself as required by Appellants' claims. In fact, it cannot even be said that the combined references teach the embedding of camera type information within the image data. Combined, the references teach

only that geographical location data should be embedded within the image data. There is no teaching in the secondary reference that data specific to a camera used to capture a multitude of images should be embedded in each of the images.

(9) *Conclusion*

For the reasons set forth above, the final rejection of this application should be over turned.

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Respectfully submitted,

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Appendix A

15. A method for correcting digital images produced by a digital camera, comprising the steps of:

identifying the camera type used to produce the digital images from image data provided by the camera;

correlating said camera type with correction values specific to the camera type to correct flaws common to images captured with said camera type; and

adjusting all of the images produced by the camera according to said correction values.

16. The method according to claim 15, wherein information identifying the camera type is hidden in the image data provided by the camera using a steganographic method.

17. A device for determining correction values for digital images produced by a camera, comprising:

identification means responsive to digital image data produced by the camera for detecting the camera type that captured the digital image; and

control means for determining camera type specific image correction values as a function of the identified camera type; and

means responsive to said control means for correcting the digital images produced by the camera, whereby all of the images produced by the camera are corrected according to said correction values.

18. The device according to claim 17, wherein information identifying the camera type is hidden in the image data provided by the camera using a steganographic method.